

# Mountain Goat Statewide Status and Harvest Management Update

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Washington  
Department of  
**FISH &  
WILDLIFE**

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A black and white photograph of a large herd of mountain goats on a steep, rocky mountain slope. The goats are scattered across the terrain, some standing and some moving. The background shows more rugged mountain peaks under a clear sky.

# **Mountain Goat Ecology 2015-2021 GMP Guidance Statewide Status & Management Draft GMP Guidance Next Steps**

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Photo Credit: WDFW, W. Moore

# Brief Mountain Goat Ecology

- Long Winters & Altitudinal Migration
- Influences Population Performance
  - Primiparity  $\approx$  4.7 years (3.7 - 5.5)
  - Prime age females 4-9 years old
  - Adult female survival
  - Fecundity  $\leq$  0.8 (Festa-Bianchet et al. 2019)
- *Mountain goat populations have relatively low reproductive potential, requiring careful harvest management*

## Nason Ridge, Chelan Co. WA

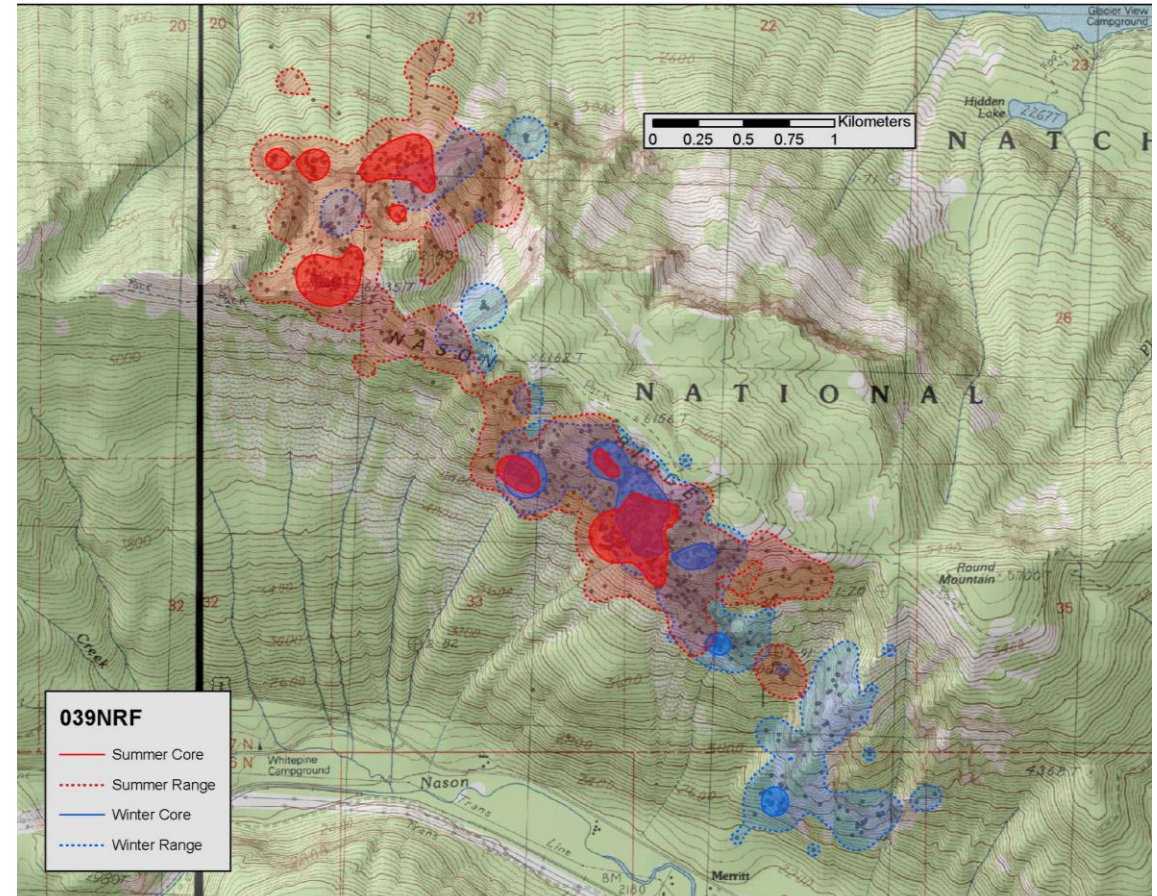
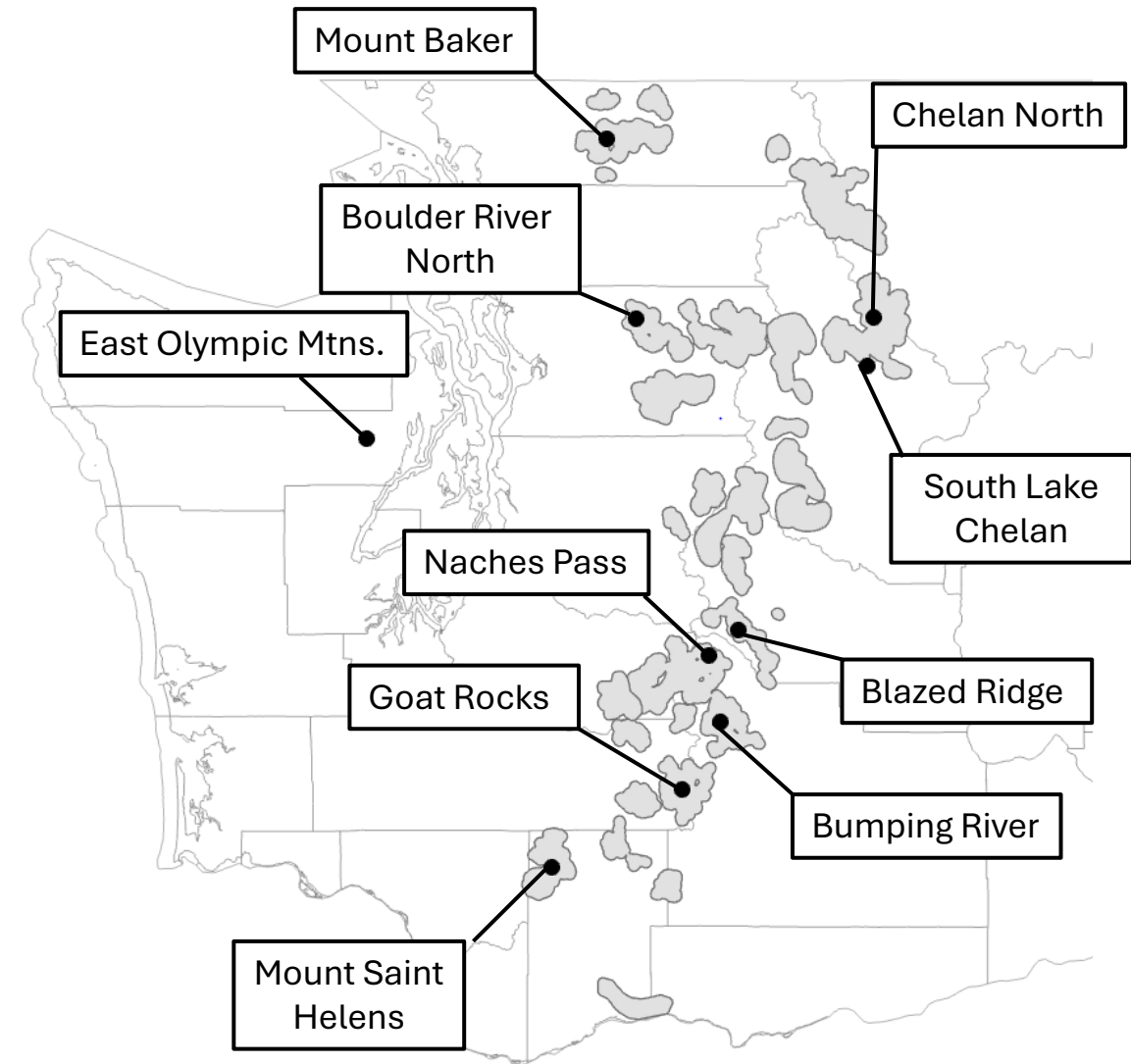


Photo Credit: Cliff Rice, Retired WDFW Research Scientist

# WDFW Managed Populations

- Nine populations are currently being managed, but multiple others are found across the Cascades.
- Additionally, the East Olympics Mtns. population is still under Department management.



# Populations, Harvest Allocation, & Hunt Units

**Population** – Mountain goats typically occur as a meta-population which consist of multiple summer range “habitat islands”. The Department identifies a population as proximal habitat islands which are believed to have consistent interaction.

**Harvest Allocation** – Generated from abundance estimates from survey blocks generally within the hunt areas.

**Hunt Units** – Boundaries which consider access, harvest vulnerability, and allow managers to control the distribution of harvest throughout the population.

**Population:**

Goat Rocks

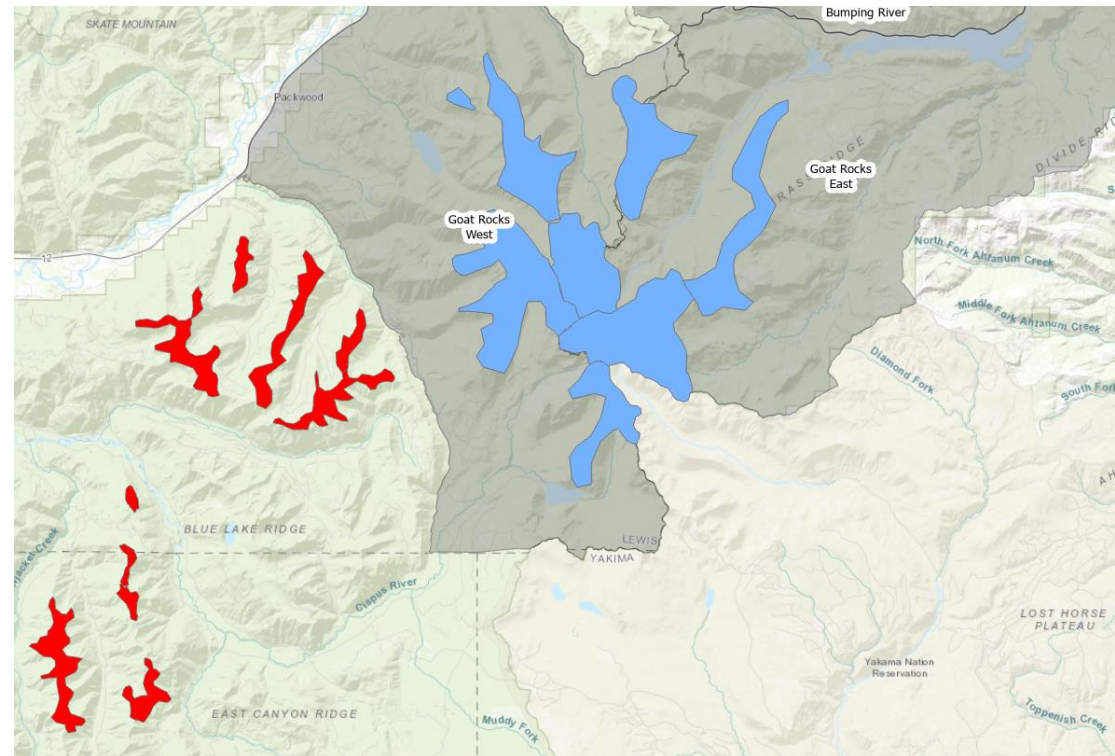
**Abundance Estimates:**

7 survey units

**Hunt Units:**

Goat Rocks West

Goat Rocks East



# Survey Goals and Methods

- Survey overview, corrected for detection bias, and standardization
- Harvested populations are monitored biennially to inform management within a 4-year period.
- Increase survey when additional funding is available
  - priority is to increase survey frequency for populations of concern
  - secondarily, non-harvested populations which are insufficiently monitored.

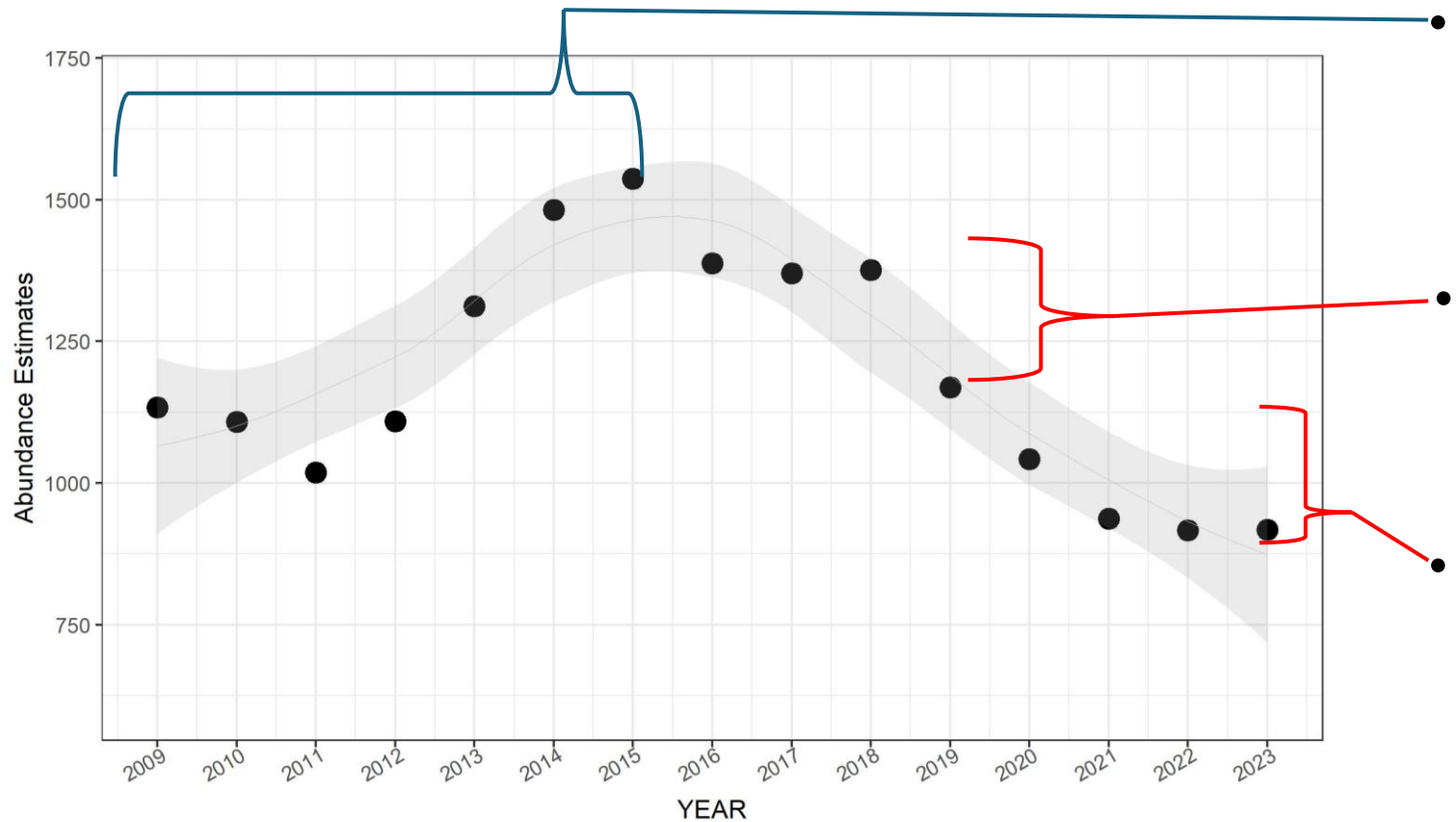


Photo Credits: William Moore & Eric Holman

# 2015-2021 Game Management Plan: Harvest Management Strategies

- Initially, population estimates must be >100 goats within an identified population before that group of mountain goats can be subject to recreational harvest.
- For populations meeting the minimum abundance criteria, permits shall be issued to limit the goat harvest to 4% or less of the estimated adult population.
- Legal bag limit is one adult goat of either sex with horns 4 inches or longer.
  - Encourage harvest of male goats (Billies) by providing all mountain goat hunters with an educational video on identifying mountain goat gender under field conditions.
  - Require mandatory in-person WDFW inspection to determine sex and age of harvest, as well as collection of biological sample for disease screening.
- Systems of permit allocation: Special Permit and Auction & Raffle

# Monitored Populations Abundance Estimates from 2009 – 2024



2002 & 2015 GMP's similar guidelines supported population growth

Declines were expected after the 2015-16 drought followed by the 2017 winter

Continued declines were not expected or easily explained

Populations: Blazed Ridge, Boulder River, Bumping River, Goat Rocks, Mount Baker, Mount St. Helens (>2013), Naches Pass, North & South Lake Chelan



# Individual Population Status and Management Overview

Population	Status	Management Action	
		Special Permit	Auction & Raffle
Blazed Ridge	Declining	Closed 2015	Removed 2023
Chelan North	Declining	Reduced 2021-22, Closed 2023	Removed 2021
South Lake Chelan	Declining	Closed 2023	Removed 2021
Boulder River North	Declining	Closed 2023	NA
Bumping River	Stable	Closed 2025 (proposed)	Removed for 2025
Goat Rocks	Declining	Harvest $\leq$ 4%	NA
Mount Baker	Declining	Harvest $\approx$ 4% [1.4-5%] Closed 2025 (proposed)	Removed for 2025
Naches Pass	Stable	Harvest $\downarrow$ from 4 – 2% 2018-22	Auction only
Mount St. Helens	Increasing	Harvest at $\approx$ 1%	Available 2025

# GMP Harvest Guideline Updates

Management Objective	2015-2021 GMP	Draft GMP Update
Harvestable Populations	Initially, population estimate of $\geq 100$ animals	Populations with estimates of $\geq 100$ animals
Allocation Guidance	Limit harvest to $\leq 4\%$ of the adult population	<p>Scaled harvest by population size:</p> <ul style="list-style-type: none"> <li>• 100 -199, 3 - 0%</li> <li>• 200 – 499, 4 - 1%</li> <li>• of the adult population</li> </ul> <p>Annually evaluate proportion of male harvest</p> <p>↑ % harvest of males</p> <p>↑ % harvest allocation</p>
Thresholds to Pause Harvest	No specific guidance	<p>Pause harvest when abundance declines below 100 goats for two consecutive estimates</p> <p>1-year harvest pause for pop. 100-199, if male proportion <math>\leq 50\%</math></p>

# New GMP Harvest Guidelines

Population estimate	Male proportion of harvest (previous three years)	Harvest target (% of total adult population <sup>a</sup> )
100-199	≥90%	3
100-199	75-89%	2
100-199	51% - 74%	1
100-199	≤50%	0
200-499	≥90%	4
200-499	75% - 89%	3
200-499	51% - 74%	2
200-499	<50%	1

- Most recent population estimate
- Total proportion of males harvested during the three previous license years
  - Defines the allocation of harvest of adults within the population

# Research & Increased Monitoring

## Survival of adult mountain goat in Washington: effects of season, translocation, snow, and precipitation

(Harris et al. 2023)

- 7 studies from 2002 -22
  - 324 goats: 206 F, 118 M
  - 217 Translocated, 107 Residence
- Contributing covariates
  - Mean snow depth
  - Drought preceding severe winters
  - Impacted survival
- Take Home Message: Last 7-8 years conditions have not been favorable to mtn. goat survival and insufficient to maintain stable populations

## South Lake Chelan

- Monitoring Objectives:
  - Sightability covariate validation
  - Winter range estimation & survey timing
  - Disease testing & vet. examination
  - Winter range estimation & survey timing
  - Summer range estimations
  - Survival monitoring
- Planning began in 2022, with capture attempted Jan. 2023 & 2024

## Goat Rocks

- Monitoring Objectives:
  - Disease testing & vet. examination
  - Assessing alternative range use (e.g., use of more forested habitats) or emigration outside of the survey area
  - Winter range estimation
  - Survival monitoring
- USFS MRDG Process
  - Began in Fall 2022
  - Submitted Spring 2023
  - Expected capture in September 2023
- Effort paused due to wilderness permitting; broadening scope

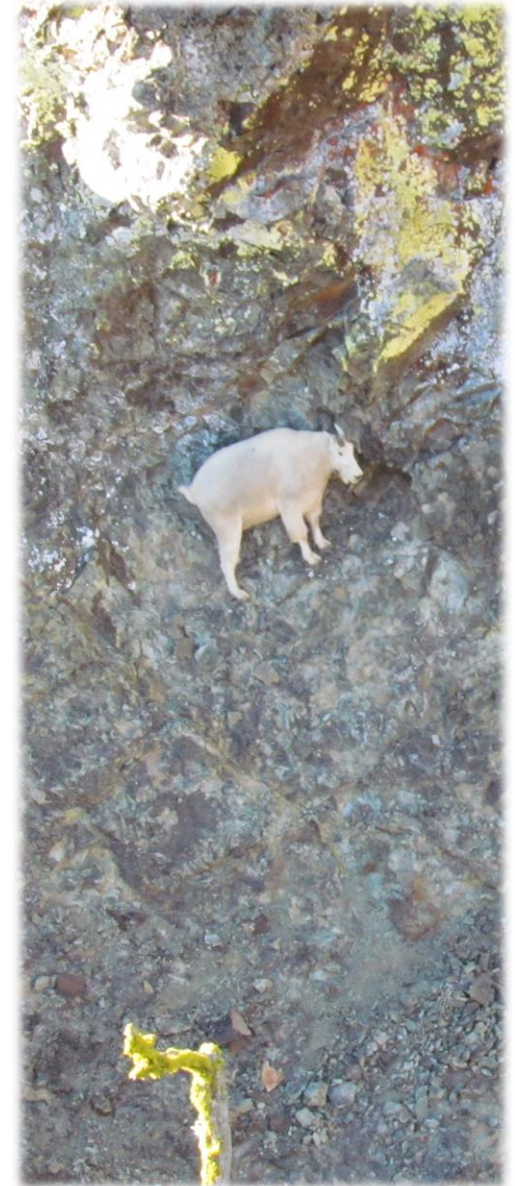


Photo Credit: William Moore

# Partner Collaboration

- **March 2023** – Mountain Goat meeting with Point Elliot Treaty Tribes
- **August 2023** – Mountain Goat meeting with Medicine Creek Treaty & Yakama Tribes
- **March 2024** – **Policy Level** meeting with WDFW's RDs, RPMs, PETT, Medicine Cr. Yakama, NWIFC, US Forest Service, and National Park Service
- **May/July/Dec. 2024** – Technical working group meetings



Photo Credit: Eric Holman

# Next Steps

**Request for Increased Funding** - to support surveys of non-harvested populations

**Developing a collaborative Technical Working Group** - that will share knowledge, coordinate surveys, and expand monitoring efforts across the Cascades.

**Decision Package Request** – To access Climate Commitment Act funding for a multi-year research initiative. This effort will coordinate with WDFW's Science Division and external partners to develop and launch targeted research, including but not limited to:

- Adult survival
- Cause-specific mortality
- Population vital rates
- Space use

Additional research objectives will be defined as the project progresses.

# Questions



Photo Credit: William Moore